

EFFECTS OF TEXT MESSAGED SELF-MONITORING ON CLASS ATTENDANCE AND PUNCTUALITY OF AT-RISK COLLEGE STUDENT ATHLETES

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This study examined the effects of text messaging class arrival to an academic counselor on the attendance and punctuality of 4 college student athletes. Each participant had a history of class tardiness and was considered to be at risk for academic failure. Class attendance and punctuality improved for all participants.

Key words: academic interventions, athletic academic services, at-risk college student athletes, self-monitoring, text messaging

The National Collegiate Athletic Association (NCAA) in 2003 enacted academic reforms that heavily emphasized student-athlete graduation on college campuses (NCAA, 2004). The NCAA dictated that colleges must provide academic services for student athletes that include monitored study hall, academic advising, tutoring, and counseling. As a result, athletic-academic-service personnel have increased their focus on the needs of student athletes who are at risk for academic failure. Currently, a paucity of intervention research has specifically addressed class absenteeism and tardiness by at-risk college student athletes.

Classroom success begins with attending class and arriving on time. Individuals who arrive late lose instructional exposure, are disruptive to the other students, and may harm their relationship with their instructor. Other interventions to improve classroom performance cannot begin until the students are in class, and a long history of educational research has shown a positive correlation between classroom attendance and academic achievement (e.g., Friedman, Rodriguez, & McComb, 2001; Jones, 1931).

This research was conducted in partial fulfillment of a MS degree in Special Education at the University of Memphis by the second author.

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doi: 10.1901/jaba.2012.45-205

Ideally, to address classroom attendance and tardiness, a representative from athletic academic services would observe student athletes' attendance for each class directly. However, this would be cost and resource prohibitive. Instructors could be recruited to measure attendance and administer contingencies, but again the resources needed to train each instructor and ensure integrity with interventions seem unlikely. Training student athletes to self-report their attendance to an assigned counselor would be an ideal solution if the student athletes reported their behavior accurately. The proliferation of cellular phones, and in particular text messaging, may make self-reporting extremely low effort, in that student athletes could simply text their entry into class to an assigned academic counselor.

The use of cellular phones has increased over the past 5 years; this trend is obvious among the college student population. In 2005, Americans had 67.5 cellular phone subscriptions per 100 people; by 2008, Americans had 86.8 subscriptions per 100 people (International Telecommunication Union, 2009). Baron and Ling (2007) found that 88% to 96% of surveyed undergraduate college students used the text-messaging feature on their cellular phones. Thus, it is likely that college student athletes would be capable of texting their entry to class without extensive training. This study was

designed as a preliminary investigation to determine if text messaging classroom entry to an academic counselor would improve class attendance and punctuality of four college student athletes.

METHOD

Participants and Setting

Ryne, Fergie, Ernie, and Ron were four undergraduate male student athletes ranging from sophomore to junior standing (19 to 22 years old), were considered to be highly at risk for academic failure according to current NCAA guidelines (NCAA, 2004), and had not responded to previous interventions for class-attendance problems. They attended the same NCAA Division I university on athletic scholarships and used the university's athletic academic-support services. Prior to participating, attendance and punctuality monitoring usually consisted of reports from the student's instructors and also included random class attendance checks by support-services staff. The participants rarely reported their own attendance and were only likely to do so after they were absent from class due to illness.

We collected data in one course for each student. We selected these specific courses because (a) prior student athletes had exhibited attendance problems during enrollment in these courses (i.e., the professor did not require attendance or inconsistently recorded attendance) and (b) initial baseline data of attendance and tardiness in these courses indicated unacceptable levels of absences and tardiness. The selected courses met once per week for 3 hr; the specific courses varied among the participants.

Dependent Variable and Measures

The second and third authors and two athletic academic-support interns served as primary and secondary observers. We selected observers who were unknown to the participants, and we did not inform participants that

they were being observed. The observers positioned themselves in a common area near the classrooms but away from the door. The primary dependent variable was the latency (in minutes) between the exact start of class and when the participant first stepped into the classroom recorded via a stopwatch. Data collectors began timing at the scheduled class start time (e.g., 9:00 a.m. for a class that was to start at 9:00 a.m.) and continued timing until the participant stepped into the classroom; data were rounded to the nearest minute. If the participant did not arrive within 30 min of the start time, he was considered absent from class on that day and data collection stopped. If the participant entered the classroom prior to the start of the class meeting, we coded this as 0-min latency. During the fall semester, Ryne's, Ernie's, and Ron's sports were in season, resulting in several excused absences from class that were omitted from the current analysis.

Design and Conditions

During the initial baseline, no contingencies for attendance were implemented. Student athletes maintained regular weekly meetings with an academic counselor during which the importance of class attendance was discussed informally. Our criterion for entering the intervention phase consisted of at least four consecutive data points of 10 to 29 min late to class or two consecutive missed classes.

Prior to initiating the intervention, the academic counselor obtained approval from the participants, the athletic academic services director, and the participants' head coaches. The coaches were asked not to mention the intervention or discuss attendance with the participants. The counselor also informed the participants' course instructors and asked the instructors not to mention the study to the participants or to change any classroom contingencies. During the first weekly meeting with the counselor, the participant was asked to text "in class" while standing outside the classroom door just before he entered the target class. The

participant sent a practice text message to his counselor to demonstrate texting accuracy. No additional feedback regarding text messaging or attendance was provided at subsequent meetings. Observers continued to conduct direct classroom measurement to ensure that the participant was texting immediately before entering the classroom.

We evaluated the effects of text messaging on timely attendance by using a reversal design (Ryne and Fergie) embedded within a multiple baseline design across participants. The university's human subjects review board approved the procedures before data collection began, and NCAA guidelines for working with student athletes were followed throughout this study without exception.

Procedural Integrity

Procedural integrity was obtained by comparing the time stamp on the text message sent to the academic counselor with the observed time the student walked in the door. Correct reporting was scored if the recorded time the student walked in the door matched the time stamp within 1 min; we counted two sessions in which the participant did not send a text message as inaccurate reporting. Overall reporting accuracy was 96% across participants.

Reliability

Interobserver agreement was determined by having a second observer simultaneously but independently record data during 30% of sessions across participants. Each observer's record of arrival latency was compared on a session-by-session basis. We scored a session in agreement if both observers recorded the same latency within 1 min; a disagreement was scored when observers' records differed by more than 1 min. Observers agreed on 100% of sessions across participants.

RESULTS AND DISCUSSION

Figure 1 presents the data for Ryne, Fergie, Ernie, and Ron. During baseline in the summer

semester, Ryne (top) arrived 23 min late to class during the first observation and was more than 30 min late (absent) in the next four observations. After the implementation of the text-messaging intervention, he arrived on time for each class. We collected a new baseline for Ryne at the start of the fall semester. He attended each class but was late to each class meeting ($M = 11$ min). After reinstatement of the text-messaging intervention, tardiness decreased to 4 min and 5 min during the final two observations. During the summer baseline, Fergie's tardiness ranged from 22 to 28 min ($M = 25$ min), and he was absent on four observations. During the intervention, tardiness ranged from 4 to 7 min ($M = 5$ min). During the fall baseline, he was 23 min late for the first class and more than 30 min late for three classes. When we reinstated the text-messaging intervention, tardiness decreased across seven class meetings ($M = 7$ min).

During the fall baseline, Ernie was more than 30 min late for the two observations. His latency ranged from 0 to 7 min ($M = 5$ min) during the intervention. Ron was more than 30 min late to the first three classes and 25 min late to the fourth class during the fall baseline. When we instituted text messaging, Ron's latency ranged from 0 to 10 min ($M = 5$ min).

These data indicate that student athletes with histories of poor classroom attendance and punctuality accurately self-reported their classroom arrival times via a text message. Requiring these students to text their arrival improved their classroom attendance and punctuality in each case. More important, none of the participants had an unexcused absence from class and averaged only 4 min late to class during the intervention. These data, along with the low response effort of texting, suggest that text messaging is a cost-effective and useful tool for monitoring and improving student attendance.

Although our data show text messaging to be an effective intervention for our participants,

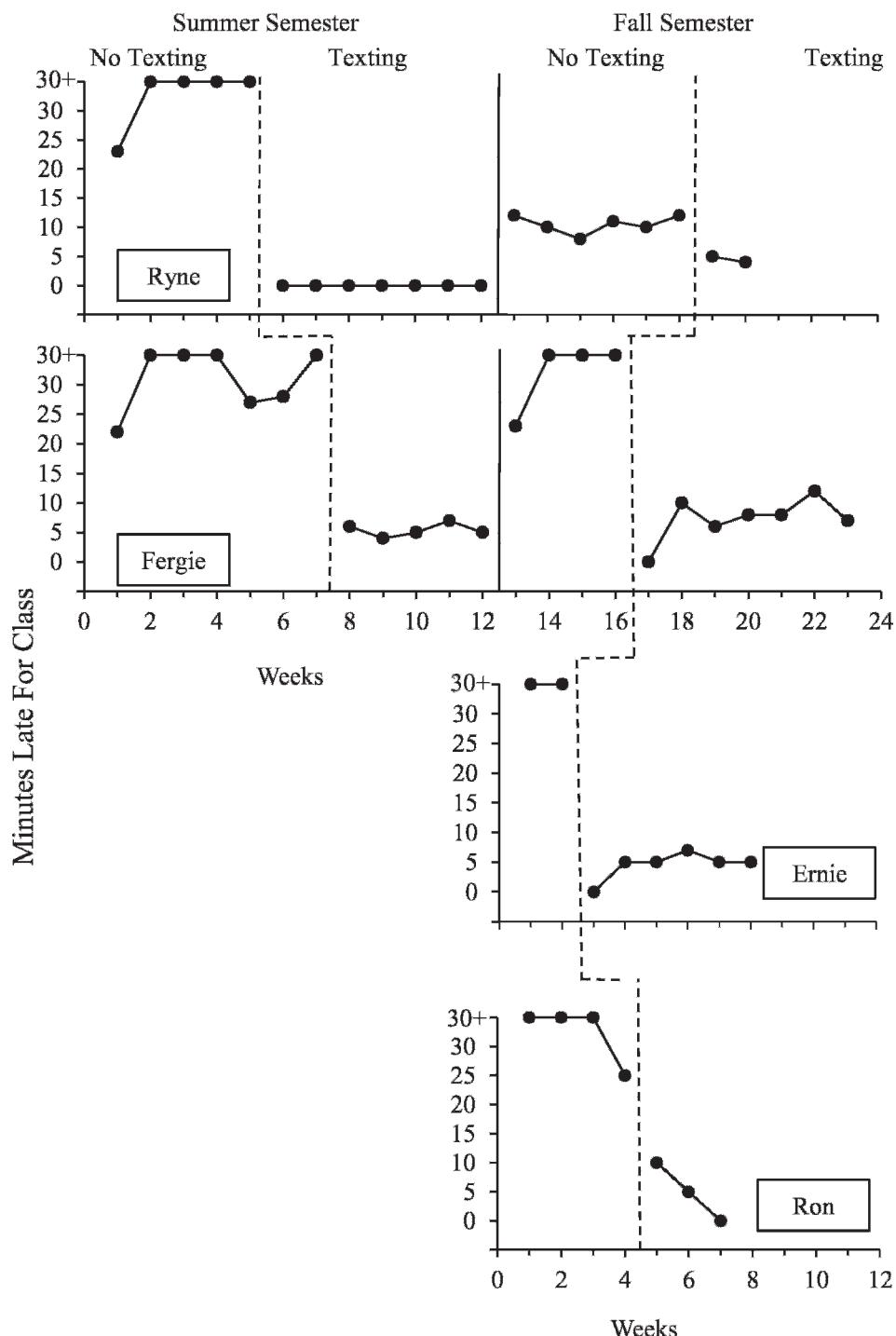


Figure 1. Minutes late to class for Ryne, Fergie, Ernie, and Ron.

the literature on text messaging as an independent variable has shown mixed results (Fjeldsoe, Marshall, & Miller, 2009). One commonality of this study with those that showed beneficial effects was the use of frequent, objective, and independent evaluations of the behavior of interest. For example, Hurling et al. (2007) used an accelerometer to measure moderate-intensity physical activity after text messaging was introduced. Most of the research showing weak treatment effects relied almost exclusively on verbal reports as data or required no response other than texting by the participant (e.g., Franklin, Waller, Pagliari, & Greene, 2006).

It is interesting to consider why text messaging would result in changes in classroom attendance and punctuality, particularly when the experimenters, academic support staff, and coaching staff did not implement any contingencies in regards to the target behavior. One possibility is that the participants had a history of differential reinforcement and punishment for rule following or noncompliance, and that the instruction to send a text message to the academic counselor capitalized on this history even in the absence of supportive contingencies. It seems likely that this history, combined with the permanent products of text messaging (i.e., potential conditioned reinforcers or punishers) sent to an individual with the ability to administer reinforcement or punishment contingencies (i.e., the academic counselor), were sufficient to create this behavior change. These processes are similar to other self-monitoring programs (e.g., Epstein & Masek, 1978).

Although promising, our results should be interpreted cautiously. If the behavior change were a function solely of a history of reinforcement and punishment, we would expect the results to weaken across time as the participants experienced the absence of contingencies on their behavior. We did not collect extensive intervention data, and our intervention did not produce complete elimination of tardiness for any of the participants. Future research may

evaluate the effects of text messaging over longer time periods and consider backing up the intervention with contingencies.

From a methodological perspective, it also is worth noting that we did not obtain participant consent until the independent variable was introduced. Thus, the effects of the intervention were confounded with the informed consent of participation in the study. Although none of the participants were told that they were being observed going to class (except for their text message), future investigators should inform the participants of observation either prior to baseline or after completion of the study to control for this confounding effect.

The current study was a preliminary investigation towards improving the educational outcomes for college student athletes. Punctual attendance alone is not sufficient to improve academic performance to desirable levels, but punctual attendance is likely necessary for other academic interventions to be successful. Thus, we view this as the first step in a more comprehensive intervention approach; future research will be necessary to improve study skills in and out of class. We consider this to be an opportunity for the field of behavior analysis to have a great impact.

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Received August 15, 2010

Final acceptance June 22, 2011

Action Editor, Jeffrey Tiger